BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Application of HAWAIIAN ELECTRIC COMPANY, INC. For Approval of Power Purchase Agreement for Renewable Dispatchable Generation with Mahi Solar, LLC.	)	DOCKET NO. 2020-0140

DECISION AND ORDER NO. 37515

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DECISION AND ORDER

By this Decision and Order,[1] the Public Utilities Commission ("Commission") approves, subject to the conditions set forth herein: (A) the Power Purchase Agreement ("PPA") between Hawaiian Electric and Mahi Solar LLC ("Mahi Solar" or "Seller"), dated September 11, 2020, for a 120-megawatt ("MW") alternating current photovoltaic ("PV") project paired with a 120 MW/480 megawatt-hour ("MWh") battery energy storage system ("BESS") to be located in Kunia, on the island of Oahu

[1]The Parties to this proceeding are HAWAIIAN ELECTRIC COMPANY, INC. dba HAWAIIAN ELECTRIC ("Hawaiian Electric" or "Company") and the DIVISION OF CONSUMER ADVOCACY ("Consumer Advocate"), an ex officio party to this proceeding pursuant to Hawaii Revised Statutes ("HRS") § 269-51 and Hawaii Administrative Rules ("HAR") § 16-601-62(a). The Commission admitted Mahi Solar as a participant. See Order No. 37386, "Granting Mahi Solar, LLC's Motion to Participate," filed October 20, 2020.

(the "Project" or "Facility"); and (B) Hawaiian Electric's request to include all non-energy payments under the PPA, including the Lump Sum Payments (as defined in the PPA) and related revenue taxes, through the Purchased Power Adjustment Clause ("PPAC"), to the extent such costs are not included in base rates.

I.

BACKGROUND

A.

Procedural History

On September 15, 2020, Hawaiian Electric filed its Application requesting approval of, among other things, the subject PPA.[2]

On October 2, 2020, Mahi Solar submitted a motion to participate in this proceeding.[3]

On October 16, 2020, the Commission issued Protective Order No. 37370 to govern the production and exchange of confidential information in this docket.

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[2]"Hawaiian Electric Company, Inc.'s Application; Exhibits 1-9; Verification; and Certificate of Service," filed September 15, 2020 ("Application"). On September 25, 2020, Hawaiian Electric filed an amended Exhibit 5, which is hereby incorporated into the Application.

[3]"Mahi Solar, LLC's Motion to Participate; Affidavit of Michael Alvarez; and Certificate of Service," filed October 2, 2020 ("Motion to Participate").

On October 20, 2020, consistent with its intent to review the PPAs resulting from the Hawaiian Electric Companies'[4] Phase 2 competitive procurement on an accelerated timeline, the Commission filed Order No. 37383,[5] setting forth a statement of issues for this proceeding, as follows:

1. Whether Hawaiian Electric has met its burden of proof in support of its request for approval of the PPA between Hawaiian Electric and Mahi Solar, dated September 11, 2020, for [a] 120 MW photovoltaic project, coupled with a 120 MW/480 MWh BESS, proposed to be located in Kunia, on the island of Oahu.

    a. Whether Hawaiian Electric's purchased power arrangements under the PPA, pursuant to which Hawaiian Electric will dispatch energy on an availability basis from Mahi Solar and pay fixed Lump Sum Payments to Mahi Solar, are prudent and in the public interest, with explicit consideration under HRS § 269-6, of the effect of the State's reliance on fossil fuels on price volatility, export of funds for fuel imports, fuel supply reliability risk, and greenhouse gas emissions;

2. Whether Hawaiian Electric has met its burden of proof in support of its request to include all other payments for energy and non-energy under the PPA, including the Lump Sum Payment (as defined in the PPA), and related revenue taxes, through the PPAC,

[4]The "Hawaiian Electric Companies" are Hawaiian Electric, Maui Electric Company, Limited, and Hawaii Electric Light Company, Inc.

[5]Order No. 37383, "(1) Approving Hawaiian Electric Company, Inc.'s Request to Bifurcate its Power Purchase Agreement-Related Requests from its Interconnection-Related Requests; and (2) Adopting a Procedural Order to Govern the PPA-Related Requests," filed October 20, 2020 ("Order No. 37383").

to the extent such costs are not included in base rates;

3. Whether Hawaiian Electric has met its burden of proof in support of its request for its proposed accounting and ratemaking treatment for the purchased power expenses under the PPA; and

4. Whether it is in the public interest for the 138 kV line extension, required to interconnect the Project to Hawaiian Electric's system, to be constructed above the surface of the ground pursuant to HRS § 269-27.6(a) and (b).

Order No. 37383 also bifurcated Hawaiian Electric's PPA-related requests (Issues 1-3) from its above-ground 138 kilovolt ("kV") line extension-related requests (Issue 4) and established a procedural schedule governing Hawaiian Electric's PPA-related requests.[6]

Also on October 20, 2020, the Commission granted Mahi Solar's motion to participate.[7]

Between October 23, 2020, and November 4, 2020, pursuant to Order No. 37383, the Consumer Advocate issued information requests ("IRs") to Hawaiian Electric and Mahi Solar. The Commission also issued its own IRs to Hawaiian Electric and Mahi Solar on November 16, 2020.

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[6]Order No. 37383 at 5-9. As mentioned in Order No. 37383, the Commission intends to issue a separate procedural order to govern Hawaiian Electric's interconnection-related requests. Id. at 16.

[7]Order No. 37386.

On November 25, 2020, Mahi Solar filed its Statement of Position.[8]

Also on November 25, 2020, the Consumer Advocate filed a motion for enlargement of time to extend the deadline to file its Statement of Position, and for Hawaiian Electric to file its Reply Statement of Position.[9]

On November 30, 2020, the Commission issued Order No. 37463, granting the Consumer Advocate's motion for enlargement of time, and extending the deadline for the Consumer Advocate to file its Statement of Position from November 25, 2020, to December 1, 2020, and for Hawaiian Electric to file its Reply Statement of Position from December 2, 2020, to December 8, 2020.[10]

On December 1, 2020, the Consumer Advocate filed its Statement of Position.[11]

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[8]"Mahi Solar LLC's Statement of Position; Affidavit of Vanessa Kwong; Exhibit A; Attachment 1; and Certificate of Service," filed November 25, 2020 ("Mahi Solar SOP").

[9]"Division of Consumer Advocacy's Motion for Enlargement of Time; and Certificate of Service," filed November 25, 2020 ("Consumer Advocate's Motion to Enlarge Time").

[10]Order No. 37463, "Granting the Division of Consumer Advocacy's Motion for Enlargement of Time," filed November 30, 2020 ("Order No. 37463").

[11]"Division of Consumer Advocacy's Statement of Position," filed December 1, 2020 ("Consumer Advocate SOP").

On December 8, 2020, Hawaiian Electric filed its Reply Statement of Position.[12]

Pursuant to the amended deadlines set forth in Order No. 37463, no further briefing is contemplated and the PPA-related requests are ready for decision-making.

B.

Parties To The PPA

Hawaiian Electric is an operating public utility engaged in the production, transmission, distribution, purchase and sale of electricity on the island of Oahu.[13]

Mahi Solar is owned by Longroad Energy Holdings, LLC ("Longroad").[14] Longroad employs the same management team that developed seven utility-scale projects currently operating in Hawaii, including over 110 MW of solar, and more than 3 gigawatts of projects on the mainland.[15] Longroad has raised $15 billion in project debt, tax equity, corporate debt and equity.[16]

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[12]"Hawaiian Electric Company, Inc.'s Reply Statement of Position; Exhibit A; and Certificate of Service," filed December 8, 2020 ("Hawaiian Electric Reply SOP").

[13]See Application at 7.

[14]See Motion to Participate at 2-3.

[15]See Application at 19.

[16]See Application at 19.

Longroad has financed over $600 million of development and construction in the State.[17]

C.

The Project

The Project will be located on 617 acres of land in Kunia, on the island of Oahu, identified by Tax Map Key ("TMK") Nos. "(1)9-2-001:001, (1)9-2-004:012, (1)9-2-004:006, (1)9-2-004:003, (1)9-2-004:010, and possibly portions of additional parcels specifically to accommodate a connector line being considered".[18] Pursuant to the PPA, Longroad will develop, finance, construct, and operate the Project.[19] The Project's 120 MW generation component will include approximately 362,000 ground mounted PV modules, mounted to 4,300 single-axis trackers, and connected to thirty-two (32) 4 MW inverters.[20] The Project's storage component will include a 120 MW/480 MWh BESS, an overhead 34 kV collector line, and a 34.5/138 kV substation, and possibly an additional

[17]See Application at 19.

[18]Application at 20. See also, id. at Exhibit 7.

[19]See Application at 19.

[20]See Application at 21.

138 kV connector line.[21] The Project will interconnect with Hawaiian Electric's system through a new 138 kV switching station adjacent to the existing 138 kV transmission circuits in the Kunia area.[22]

Mahi Solar "represents and warrants that, as of the Commercial Operations Date ('COD') of the [Project],[23] the [Project] will be a qualified renewable resource under the [Renewable Portfolio Standards ('RPS')[24]] in effect as of the effective date of the PPA ('Effective Date')."[25] Mahi Solar further represents that as of the Effective Date, "absent a change in RPS law, any and all energy delivered by Seller to Hawaiian Electric

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[21]See Application at 21.

[22]See Application at 21.

[23]The "Commercial Operations Date" is defined by the PPA as the "date on which the Facility first achieves Commercial Operations." Application, Exhibit 1 at 151. "Commercial Operations" is further defined by the PPA as Hawaiian Electric's "satisfaction" of certain "conditions," which includes passage of the "Acceptance Test[.]" Id., Exhibit 1 at 150-151. The "Acceptance Test" is defined, in part, as a "test" conducted by Mahi Solar and witnessed by Hawaiian Electric "within thirty (30) Days of completion of all Interconnection Facilities[.]" Id., Exhibit 1 at 147.

[24]See HRS §§ 269-91, -92, -93, -94, -95, and -96.

[25]Application at 22. The "Effective Date" is defined by the PPA as "the last to occur of (i) the Non-appealable PUC Approval Order Date and (ii) the date that the Interconnection Requirements Amendment . . . is executed and delivered as such date is set forth in the Interconnection Requirements Amendment." Id., Exhibit 1 at 154.

from or through the [Project] will meet the definition of 'renewable electrical energy' or 'renewable energy' as defined under HRS § 269-91."[26]

D.

Material Terms Of The PPA

The salient terms of the PPA are summarized below.[27] In general, Hawaiian Electric states that "[s]pecific terms and conditions of the PPA were negotiated by [Hawaiian Electric and Mahi Solar] at arms-length and contain indemnification, insurance and other provisions that will serve to protect [Hawaiian Electric] and its customers from certain risks associated with interconnecting the PV plus storage Facility."[28]

Term: The initial term ("Term") of the PPA is twenty-five (25) years following the Commercial Operations Date.[29] Upon expiration of the Term, the PPA automatically terminates.[30]

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[26]Application at 22 (citation omitted).

[27]The terms and conditions of the PPA are also summarized in Exhibit 4 to the Application. In addition, the complete PPA is attached as Exhibit 1 to the Application. Citations to the PPA will be by the Application's "Exhibit 1" numbers, rather than the PPAs' internal page numbering.

[28]Application at 10, 25.

[29]See Application, Exhibit 4 at 3.

[30]See Application, Exhibit 4 at 3.

Commission Approval and Associated Termination Rights:

Hawaiian Electric and Mahi Solar are required to use "good faith efforts to obtain, as soon as practicable," a satisfactory Commission order approving the PPA.[31] If a satisfactory Commission order is not issued within twelve (12) months of the date the Application was filed with the Commission, or within a longer period as agreed to by Hawaiian Electric and Mahi Solar, either Hawaiian Electric or Mahi Solar may, within one hundred eighty (180) days of such date, issue written notice declaring the PPA null and void.[32] Similarly, if a Commission approval order is issued within twelve (12) months but is appealed, and a non-appealable Commission order approving the PPA is not obtained within twenty-four (24) months from the date the Application was filed, eighteen (18) months from the filing of such appeal, or such longer period as Hawaiian Electric and Mahi Solar may subsequently agree upon, Hawaiian Electric or Mahi Solar may, within ninety (90) days of such date, by written notice, declare the PPA null and void.[33]

Hawaiian Electric clarifies that "[t]imeframes for Commission approval were set based on, among other things,

[31]Application, Exhibit 4 at 3 (citing Exhibit 1 § 12.3(a)).

[32]See Application, Exhibit 4 at 3.

[33]Application, Exhibit 4 at 3-4.

the Project's schedule, the Parties' desire to meet the Guaranteed Commercial Operations Date proposed by Seller in its RFP Proposal, and the Project's need to move forward as expeditiously as possible to safe harbor the federal Investment Tax Credit ('ITC')."[34] However, Hawaiian Electric also clarifies that "in the event Seller is unable to safe harbor the ITC and the PPA is not declared null and void pursuant to the terms of the PPA, the contract price negotiated in the PPA will not be increased or subject to adjustment."[35]

Company Right to Declare PPA Null and Void Prior to Effective Date: Hawaiian Electric may declare the PPA null and void prior to the Effective Date for the following reasons:

> (a) Seller implements material changes in the type of, or performance specifications of, the equipment that affects the results of the IRS or project schedule without consent of the Company[;]
>
> (b) Seller's material breach of any of its representations and warranties, including a breach of Sections 22.2(c) or 22.2(d) of the PPA requiring Seller to have obtained certain Land Rights and Governmental Approvals, or the provisions of Attachment G (Company-Owned Interconnection Facilities) requiring the payment by Seller to Company of certain specified amounts for interconnection facilities, and such breach has not been cured within ten (10) Days of notice from the Company[;]
>
> (c) Seller, after making payment for the interconnection facilities, requests in writing

[34]Application, Exhibit 4 at 4.

[35]Application, Exhibit 4 at 4.

that Company stop or otherwise delay the performance of work for which Company received such payment[;] and

(d) The IRS Letter Agreement and any agreement to effectuate a greenhouse gas emissions analysis under Section 12.3 (PUC Approval) is terminated prior to the completion of the Interconnection Requirements Study.[36]

Pricing – Lump Sum Payment:

The PPA does not provide for any energy payment; rather, "the Seller is paid a Lump Sum Payment" in exchange "for the Company's right to dispatch" the Project's energy production.[37] The Project's energy projection is valued based on an estimated Net Energy Potential ("NEP") for the Project, which "represents the theoretical annual energy delivery of the [Project's] PV System to the Point of Interconnection [with Hawaiian Electric] assuming 'typical' availability and 'representative' meteorological conditions at the [Project] site, with a probability of exceedance of 95%."[38] The Lump Sum Payment amount will be adjusted "from time to time as the MWh value assigned to the [Project's] NEP is reassessed as provided in the PPA[,]" but which will be "made on

[36]Application, Exhibit 4 at 4-5 (citing Exhibit 1 § 12.5).

[37]Application, Exhibit 4 at 5.

[38]Application, Exhibit 4 at 7.

the basis of the 'Unit Price' of $0.097045944 per [kilowatt-hour ("kWh")] of NEP, as specified in the PPA."[39]

Pricing - Liquidated Damages: Liquidated damages ("Liquidated Damages") are assessed when/if Mahi Solar fails to achieve certain Performance Metrics that indicate that Hawaiian Electric "is not receiving the benefit of its dispatch rights over the [Project's] energy production and storage."[40] Liquidated Damages are assessed based on the full Lump Sum Payment amount and have "the potential to reduce [the Lump Sum Payment] down to zero if the [Project] is completely unavailable or if the [Project] is available but underperforming in other aspects as measured by the Performance Metrics."[41] The Performance Metrics include:

1. The PV System Equivalent Availability Factor ("EAF")[42] Performance Metric, which is used to evaluate the availability of the PV System for dispatch by Hawaiian Electric;

[39]Application, Exhibit 4 at 7. Hawaiian Electric states that the Unit Price was calculated based on the Lump Sum Payment and MWh value of the Project's NEP as provided by Mahi Solar in its RFP Response. Id.

[40]Application, Exhibit 4 at 9.

[41]Application at 23.

[42]See Application, Exhibit 1 at 10-13.

2. The Guaranteed Performance Ratio ("GPR")[43] Performance Metric, which is used to evaluate the efficiency of the PV system;

3. The BESS Capacity Performance Metric,[44] which is used to confirm the capability of the BESS to discharge as required by the terms of the PPA;

4. The BESS EAF Performance Metric,[45] which is used to determine whether the BESS is meeting its expected availability;

5. The BESS Annual Equivalent Forced Outage Factor ("EFOF") Performance Metric,[46] which is used to evaluate whether the BESS is experiencing excessive unplanned outages; and

6. The BESS RTE Performance Metric, which is used to evaluate the BESS' energy storage efficiency.[47]

In the event that Mahi Solar fails to achieve one or more of the Performance Metrics, there is a Liquidated Damages amount that is associated with such failure.[48] Liquidated Damages relating to the PV system are calculated on the basis of the

[43] See Application, Exhibit 1 at 160.

[44] See Application, Exhibit 1 at 149.

[45] See Application, Exhibit 1 at 149.

[46] See Application, Exhibit 1 at 390.

[47] See Application, Exhibit 1 at 9.

[48] See Application, Exhibit 4 at 9.

Lump Sum Payment amount.[49] Liquidated Damages relating to the BESS are calculated on the basis of the BESS Allocated Portion of the Lump Sum Payment for an applicable three-month period (which is referred to in the PPA as a "BESS Measurement Period").[50]

Pricing – Other Adjustments: The Lump Sum Payment may also be adjusted based on the report of the Project's NEP by an independent engineer ("IE") at the close of Seller's construction financing, but before commercial operation of the Facility. If the IE finds that the Project's NEP is equal to or greater than the NEP estimate provided in Seller's RFP Response, the Lump Sum Payment specified in the Application will apply for the first fifteen (15) months following commercial operation of the Project. However, if the IE determines that the Project's NEP is less than the NEP estimate in Seller's RFP Response, Seller may either: (1) declare the PPA null and void; or (2) use the IE's NEP estimate to reduce the Lump Sum Payment used during the first fifteen (15) months following commercial operation of the Project, as well as pay a one-time Liquidated Damages calculated on the basis of $10/MWh of the differential between the two NEP estimates.[51]

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[49]See Application, Exhibit 4 at 5.

[50]Application, Exhibit 4 at 6.

[51]See Application, Exhibit 4 at 9.

Company's Right of First Negotiation to Purchase the Project: In the event Mahi Solar wishes to assign its interest in the Project or effect a change of control, Hawaiian Electric has the first right to negotiate for purchase of the Project.[52] Additionally, "in the event that [Hawaiian Electric] is subject to consolidation treatment under [Financial Accounting Standards Board Accounting Standards Codification] 810 . . . with respect to Seller and the [Project], . . . [Hawaiian Electric and Seller] shall effectuate a sale of the [Project] to [Hawaiian Electric]. Such sale shall be on commercially reasonable terms" as specified in the PPA.[53] Hawaiian Electric clarifies that any such purchase of the Project "shall be subject to application to the Commission for approval, and, prior to consummation, formal Commission approval of such purchase."[54]

Similarly, at the end of the PPA Term, Hawaiian Electric has the right of first negotiation to purchase the Project.[55]

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[52]See Application, Exhibit 4 at 10 (citing Exhibit 1 § 19.1; and Exhibit 1 Attachment P). The PPA also provides for limited instances of "exempt sales" to which Hawaiian Electric's right of first negotiation does not apply. See Exhibit 1 at 315, Attachment P, § 1(c).

[53]Application, Exhibit 4 at 10 (citing Exhibit 1 § 24.5; and Exhibit 1 at 326-327, Attachment P, § 6).

[54]Application, Exhibit 4 at 10.

[55]See Application Exhibit 1 at 312-327, Attachment P.

Compliance with Laws and Regulations: Under the PPA, Mahi Solar is responsible for:

> (A) obtaining, at its expense, any and all necessary permits, governmental approvals, and land rights for the construction and operation of the [Project], including but not limited to rights-of-way, easements, or leases;
>
> (B) installing, operating, and maintaining the Project safely and in compliance with all applicable laws; and
>
> (C) Prior to commencement of construction of the Company-owned Interconnection Facilities, providing the necessary permits, government approvals, and land rights for construction, ownership, operation, and maintenance of the Company-Owned Interconnection Facilities.[56]

Site Restoration: After termination of the PPA, or if the PPA is declared null and void, Mahi Solar will, upon Hawaiian Electric's request, remove all Company-Owned Interconnection Facilities and Seller-Owned Interconnection Facilities from the land and restore the land to its condition prior to construction (alternatively, Hawaiian Electric may elect to remove all or part of the Company-Owned Interconnection Facilities and/or Seller-Owned Interconnection Facilities, in which case Mahi Solar will reimburse Hawaiian Electric for the cost of removal).[57]

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[56]Application, Exhibit 4 at 11 (citing Exhibit 1 §§ 11.1 – 11.3).

[57]See Application, Exhibit 4 at 11.

Company Dispatch: Hawaiian Electric will have discretion to dispatch the Project, including the PV system and BESS, in its preferred manner.[58]

Credit Assurances and Security: Mahi Solar is required to post and maintain Development Period Security and Operating Period Security.[59]

Guaranteed Commercial Operations Date, Project Milestones: Mahi Solar must meet certain "Guaranteed Project Milestones" to keep the Project on schedule, as set forth in Article 13, and "[f]ailure to meet Guaranteed Project Milestones subjects Seller to Daily Delay Damages and eventual termination for failure to cure."[60]

If a Project milestone is not achieved by the applicable deadline, Mahi Solar shall pay Daily Delay Damages to Hawaiian Electric in the amount of $33,333.33 per day following the 10th day after the applicable milestone deadline, not to exceed one hundred eighty (180) days for each missed milestone.[61]

[58]See Application, Exhibit 4 at 11.

[59]See Application, Exhibit 4 at 11-12.

[60]Application, Exhibit 4 at 12 (citing Exhibit 1, Article 13).

[61]Application, Exhibit 1 at 78-80, § 13.4.

II.

PARTIES' AND PARTICIPANT'S POSITIONS

A.

Hawaiian Electric

In support of its Application, Hawaiian Electric puts forth a number of justifications, including: (1) the Project is the result of a competitive bidding procurement process; (2) the Project is expected to provide bill savings over the contract term; (3) the Project is expected reduce customer exposure to fuel price volatility; (4) the Project will help meet the State's energy policy objectives and RPS goals; (5) the Facility will provide essential Grid Services as defined in the Integrated Grid Planning process; (6) the Project will reduce fossil fuel consumption by Hawaiian Electric's generating units; and (7) the Project will be dispatchable and thus allow Hawaiian Electric to get maximum value from this and additional renewable resources.[62]

Competitive Bidding Process. Hawaiian Electric notes that the Project was selected through a competitive procurement process with defined targets and operation dates.[63] For Oahu, "Hawaiian Electric sought Proposals for the capability to provide approximately 1,300,000 MWh per year ('MWh/year') of variable

[62] See Application at 3-5.

[63] See Application at 9.

renewable dispatchable generation delivered to the Company's System."[64] Hawaiian Electric states that this process enabled it to select this Project (as part of a portfolio of projects) to deliver the benefits contemplated by the Stage 2 RFP at competitive prices.[65]

Bill Savings. Because the Unit Price of the Project is fixed (and not tied to the price of fossil fuels), it is expected to result in customer bill savings customers over the term of the PPA. Hawaiian Electric estimates that as a result of the PPA, a typical residential customer consuming 500 kWh per month of electricity could save approximately $1.38 per month on average during the term of the PPA.[66]

Fuel Price Volatility. Hawaiian Electric asserts that the PPA will reduce customer exposure to volatility in fuel prices by de-linking the PPA pricing from fossil fuel over the term of the PPA, and by adding more renewable generation that displaces fossil fuels. As such, Hawaiian Electric states that customers "will not be subject to bill increases with rises in the price of fossil fuel."[67]

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[64]Application, Exhibit 2 at 6.

[65]See Application at 9.

[66]See Application at 10.

[67]Application at 12.

RPS Goals. Hawaiian Electric states that "[t]he renewable energy to be purchased from the Facility pursuant to the PPA will assist Hawaiian Electric in achieving the State of Hawaii's RPS goals."[68] Hawaiian Electric estimates that the Project could contribute up to 4.14 percentage points of the its 2025 RPS and 3.17 percentage points of the Hawaiian Electric Companies' consolidated 2025 RPS.[69]

Grid Services. Hawaiian Electric states that the Project will enable it to dispatch available energy in real time, thereby "allowing the Facility to potentially contribute to many of the grid services as proposed in the Integrated Grid Planning process traditionally provided by conventional synchronous generation[.]"[70] According to Hawaiian Electric, it "will be able to dispatch energy from the Project's PV or storage system as needed to serve customer demand outside solar production hours, and to provide replacement reserves."[71] Hawaiian Electric asserts that "the Facility's technical and operational capabilities will contribute to grid stabilization for faults and contingencies," which will allow the Project to provide energy and grid services

[68]Application at 11.

[69]See Application at 11.

[70]Application at 9 (citation omitted).

[71]Application at 9.

that might otherwise come from fossil fuel conventional generating units.[72]

Reduced Fossil Fuel Consumption. Hawaiian Electric estimates that energy from the Project will reduce fossil fuel consumption over the life of the PPA as follows: 2,541,564 barrels of low sulfur fuel oil avoided; 364,199 barrels of diesel fuel avoided; and 5,202,000 barrels of Ultra-Low Sulfur Diesel.[73]

Dispatchable Generation. Hawaiian Electric states that "[t]he PPA was based on the model Renewable Dispatchable Generation PPA filed with the Stage 2 RFP [whose] [s]pecific terms and conditions . . . contain indemnification, insurance, and other provisions that will serve to protect the Company and its customers from certain risks[.]"[74] Hawaiian Electric asserts that it negotiated significant provisions to ensure capabilities of the facility whenever it is dispatched during the term of the PPA.[75]

[72]Application at 9.

[73]See Application, Exhibit 3 at 3-4.

[74]Application at 10.

[75]See Application at 10, see also Application, Exhibit 4.

B.

The Consumer Advocate

The Consumer Advocate recommends approving Hawaiian Electric's PPA-related requests, subject to certain conditions.[76] In reaching this recommendation, the Consumer Advocate states that it considered: (1) the procurement process; (2) the pricing and bill impacts associated with the proposed PPA; (3) the terms and conditions of the proposed PPA; (4) community outreach; and (5) the Project's effect on the State's reliance on fossil fuels, greenhouse gas emissions, and contribution to renewable portfolio goals.[77] Notwithstanding the Consumer Advocate's concerns regarding a few issues raised by the IO in its Oahu Phase 2 RFP IO Report, the reasonability of the Lump Sum Payments, and certain ambiguities in Hawaiian Electric's greenhouse gas ("GHG") analysis, the Consumer Advocate concludes that there do "not appear to be any 'fatal' flaws in the areas" that it reviewed."[78]

The Consumer Advocate therefore recommends that the Commission: (1) approve the PPA between Mahi Solar and Hawaiian Electric, dated September 14, 2020; (2) find that the

[76]See Consumer Advocate SOP at 1-2.

[77]See Consumer Advocate SOP at 12.

[78]Consumer Advocate SOP at 34.

purchased power arrangements in the PPA are reasonable, with explicit consideration of the effect on the State of Hawaii's reliance on fossil fuels on price volatility, export of funds for fuel imports, fuel supply reliability risk, and GHG emissions; (3) authorize Hawaiian Electric to include all payments for energy and non-energy under the PPA, including the Lump Sum Payments and related revenue taxes, in Hawaiian Electric's PPAC to the extent such costs are not included in Hawaiian Electric's base rates; and (4) approve the proposed accounting and ratemaking treatment for the purchased power expenses under the PPA.[79]

The Consumer Advocate recommends that the Commission impose the following conditions on approval: (1) Hawaiian Electric should file copies of all invoices relating to the engineering, procurement, construction, and maintenance associated with the proposed PPA no later than sixty (60) days after the Commercial Operations Date, as well as file Mahi Solar's income statements or results of operations related to the proposed PPA that will allow the Commission and the Consumer Advocate to evaluate the comparability of the Project's actual results to the pro forma information; (2) as it relates to future procurement processes, bidders should be required to file the pro forma information related to their project, in addition to copies of any

[79]See Consumer Advocate SOP at 1-2, 39-40.

supporting documentation (e.g., copies of leases, EPC contracts, etc.) - including native files with formulas intact - to support their bid price; (3) Hawaiian Electric should file, within 15 days of any missed Guaranteed Project Milestone, the milestone missed, the reason(s) why the milestone was missed, as well as measures the Company believes will address the delay, including preventing similar delays for the same or other projects in the future; (4) Hawaiian Electric should file periodic analyses that support a finding that the Project is being used and dispatched in a manner to maximize the benefits to customers; (5) all completed environmental assessments that will be used to develop a detailed decommissioning plan and methodology should be in place to determine if the Land has been restored to its condition prior to the development and construction of the Project; and (6) the two issues identified by the IO in the Oahu Phase 2 RFP IO Report should be addressed for future RFPs.[80]

The Consumer Advocate does not object to the inclusion of the PPA payments in Hawaiian Electric's PPAC, if such costs are not included in another cost recovery mechanism.[81]

The Consumer Advocate does not object to Hawaiian Electric's proposed ratemaking treatment, but argues that

[80]See Consumer Advocate SOP at 35-37.

[81]See Consumer Advocate SOP at 37.

"as the Company conducted a preliminary evaluation, which considered the PV system not to contain a lease, while the BESS was determined to contain a lease, to the extent that there are any changes to those determinations, the Company should report such changes and any associated changes to the regulatory asset/liability and ratemaking treatment."[82]

C.

Mahi Solar

In its Statement of Position, Mahi Solar recommends that the Commission find that the purchased power arrangements under the PPA are prudent and in the public interest.[83] In support of its recommendation, Mahi Solar cites: (1) cost savings to Hawaiian Electric's customers; (2) RPS and environmental benefits; (3) needed energy storage and grid services on Oahu; and (4) community support.

Cost Savings. Mahi Solar states that the Project's pricing of $97.045944 per MWh "is the lowest of the Stage 2 RFP projects on Oahu."[84] Mahi Solar further states that "[a]djusting

[82]Consumer Advocate SOP at 39.

[83]See Mahi Solar SOP at 3. Mahi Solar also argues that, if necessary, the Commission should find that the 138 kV line extension should be constructed above the surface of the ground. Id. at 3.

[84]Mahi Solar SOP at 7.

for the approximate $22 per MWh that would have been included in the Project's pricing" if Hawaii State tax credits were available to Mahi Solar, and not required to be passed through to ratepayers, the Project's pricing "would be equivalent to $75.046 per MWh, which would be lower than any of the Stage 1 RFP projects on Oahu."[85]

Mahi Solar states that the Project will result in cost savings of $1.38 per month for a typical residential Hawaiian Electric customer on Oahu on average during the term of the PPA.[86] Mahi Solar also states that certain PPA terms, including potential Lump Sum Payment adjustments and various performance metrics, ensure that ratepayers will not pay for services or capacity that they do not receive.[87]

RPS and Environmental Benefits. Mahi Solar observes that the Project will contribute approximately 4.14 percentage points to Hawaiian Electric's 2025 RPS.[88] Relatedly, Mahi Solar states that "the Project will contribute to a cleaner environment for the island of Oahu by" displacing approximately, 2,541,514 barrels of low sulfur fuel oil, 364,199 barrels

[85]Mahi Solar SOP at 7-8 (citation omitted).

[86]See Mahi Solar SOP at 8.

[87]See Mahi Solar SOP at 8.

[88]See Mahi Solar SOP at 9.

of diesel fuel, 5,202,000 barrels of ultra-low sulfur diesel fuel, and 1,204,286 barrels of biodiesel.[89]

Energy Storage and Grid Services. Mahi Solar states that the Project includes a BESS that can store photovoltaic energy as it is produced, and allow Hawaiian Electric to dispatch that energy at time of high customer demand and assist in grid stabilization.[90] Mahi Solar further states that the BESS will perform grid services that are traditionally performed by conventional synchronous generation, including "Regulating Reserve, Primary Frequency Response, and Voltage Support."[91] Mahi Solar explains that the Project is also expected to operate in "grid-forming mode, which will assist with maintaining system reliability, and help to reduce or eliminate the use of fossil-fuel synchronous units."[92]

Community Support. Referencing initial public comments it received that were provided with the Application, and comments received at community meetings, Mahi Solar states "that the Project has general support of the local community."[93] Mahi Solar

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[89]Mahi Solar SOP at 9-10 (citation omitted).

[90]See Mahi Solar SOP at 10.

[91]Mahi Solar SOP at 10 (citation omitted).

[92]Mahi Solar SOP at 10 (citations omitted).

[93]Mahi Solar SOP at 11.

states that it has developed robust plans to mitigate concerns raised in these comments, including the Project's impacts to agricultural lands, and potential impacts to pueo habitat.[94]

Finally, Mahi Solar stated its opposition to various reporting conditions that the Consumer Advocate has requested in past dockets, and requested that the Commission "approve the PPA without imposing such reporting conditions on [Mahi Solar]."[95]

D.

Hawaiian Electric Reply

In its Reply Statement of Position, Hawaiian Electric "generally agrees with the . . . recommendations made by the Consumer Advocate in its SOP," and "supports the SOP" filed by Mahi Solar, to the extent it recommends approval of the PPA, but "takes no position" as to Mahi Solar's other arguments.[96]

With regard to the Consumer Advocate's Statement of Position, Hawaiian Electric acknowledges the Consumer Advocate's proposed conditions and addresses them as follows:

(1) Re: filing of Project invoices and Seller's income statements or results of operation following the Commercial

[94]See Mahi Solar SOP at 11-13.

[95]Mahi Solar SOP at 15.

[96]Hawaiian Electric Reply SOP at 1-2.

Operations Date. Hawaiian "does not object to this recommendation in concept," but contends that "[s]ince Seller will maintain such information, . . . the condition should apply to Seller, which is a participant in this proceeding."[97] Hawaiian Electric also observes that Mahi Solar can designate this information as confidential, if desired.[98]

(2) Re: requiring bidders to submit pro forma information in future procurement processes, with supporting documentation. Hawaiian Electric agrees with this recommendation and adds that, "[h]aving now completed the RFP process of Stage 2, the Companies confirm that requiring a complete pro forma would have been beneficial to the process and allowed for a more informed evaluation of developers' proposed projects."[99]

(3) Re: requiring Hawaiian Electric to file, within fifteen (15) days of any missed Guaranteed Project Milestone, the milestone missed, the reason why the milestone was missed, and any measure to mitigate the impact (including in the future). Hawaiian Electric requests a filing timeframe of twenty-five (25) days after a missed Guaranteed Project Milestone

[97]Hawaiian Electric Reply SOP at 5.

[98]See Hawaiian Electric Reply SOP at 5.

[99]Hawaiian Electric Reply SOP at 6.

instead to align with the Seller's ten-day grace period before being assessed Daily Delay Damages.[100]

(4) Re: requiring Hawaiian Electric to file periodic analyses to support a finding that the Project is being used in a manner that maximizes benefits to customers. Hawaiian Electric states that the Application identifies the numerous benefits of the Project and PPA, and it is already required to provide information relating to the use and dispatch of the Facility in reports filed in Docket Nos. 2017-0213 and 2011-0206.[101]

(5) Re: decommissioning plan. Hawaiian Electric states that "it would not be prudent to only use environmental assessments prepared prior to development and construction of the Project as the basis for the Project's decommissioning plan" to determine if the Land has been restored to its condition prior to the development and construction of the Project.[102] Hawaiian Electric states that "[s]ince further assessment of potential impacts to the land will continue to be refined throughout the project development, environmental study and permitting processes, a detailed decommissioning plan and methodology . . . has not yet been developed. Any such plan would require an assessment of the

[100]Hawaiian Electric Reply SOP at 6-7.

[101]See Hawaiian Electric Reply SOP at 7-10.

[102]Hawaiian Electric Reply SOP at 10.

Company's needs for the interconnection facilities and the environmental laws in effect at the time of decommissioning, and thus cannot be committed prior to the Project's development and construction."[103]

(6) Re: pages 30-31 of Attachment 1 to the Consumer Advocate's Statement of Position. In connection with pages 30-31 of Attachment 1 to the Consumer Advocate's Statement of Position, Hawaiian Electric states that it will, among other things, "attempt to include more specific information related to other renewable technologies, such as biofuel or other firm type generators, for any future, renewable, technology-agnostic RFP."[104]

Finally, Hawaiian Electric states that it supports Mahi Solar's SOP to the extent that it recommends that the Commission find the PPA prudent and in the public interest.[105]

[103]Hawaiian Electric Reply SOP at 10-11.

[104]Hawaiian Electric Reply SOP at 12.

[105]See Hawaiian Electric Reply SOP at 12.

III.

DISCUSSION

A.

Legal Authorities

Generally, the rates agreed upon between Hawaiian Electric and Mahi Solar pursuant to the PPA are subject to review under HRS § 269-27.2(c), which provides:

> The rate payable by the public utility to the producer for the nonfossil fuel generated electricity supplied to the public utility shall be as agreed between the public utility and the supplier and as approved by the public utilities commission; provided that in the event the public utility and the supplier fail to reach an agreement for a rate, the rate shall be as prescribed by the public utilities commission according to the powers and procedures provided in this chapter.
>
> The commission's determination of the just and reasonable rate shall be accomplished by establishing a methodology that removes or significantly reduces any linkage between the price of fossil fuels and the rate for the nonfossil fuel generated electricity to potentially enable utility customers to share in the benefits of fuel cost savings resulting from the use of nonfossil fuel generated electricity. As the commission deems appropriate, the just and reasonable rate for nonfossil fuel generated electricity supplied to the public utility by the producer may include mechanisms for reasonable and appropriate incremental adjustments, such as adjustments linked to consumer price indices for inflation or other acceptable adjustment mechanisms.

Additionally, HAR § 6-74-22 states that rates for purchases shall:

> (1) Be just and reasonable to the electric consumer of the electric utility and in the public interest;

(2) Not discriminate against qualifying cogeneration and small power production facilities; and

(3) Be not less than one hundred per cent of avoided cost for energy and capacity purchases to be determined as provided in [HAR] 6-74-23 from qualifying facilities and not less than the minimum purchase rate.

Concomitantly, HAR § 6-74-15(b)(1) provides that HAR § 6-74-22 does not prohibit an electric utility or any qualifying facility from agreeing to a rate for any purchase, or terms or conditions relating to any purchase, which differ from the rate or terms or conditions which would otherwise be required by HAR § 6-74-22.

Relatedly, HRS § 269-16.22 states:

> All purchase power costs, including costs related to capacity, operations and maintenance, and other costs that are incurred by an electric utility company, arising out of power purchase agreements that have been approved by the public utilities commission and are binding obligations on the electric utility company, shall be allowed to be recovered by the utility from the customer base of the electric utility company through one or more adjustable surcharges, which shall be established by the public utilities commission. The costs shall be allowed to be recovered if incurred as a result of such agreements unless, after review by the public utilities commission, any such costs are determined by the commission to have been incurred in bad faith, out of waste, out of an abuse of discretion, or in violation of law. For purposes of this section, an "electric utility company" means a public utility company as defined under section 269-1, for the production, conveyance, transmission, delivery, or furnishing of electric power.

Similarly, HAR § 6-60-6(2) states:

> No changes in the fuel and purchased energy costs may be included in the fuel adjustment clause unless the contracts or prices for the purchase of such fuel or energy have been previously approved or filed with the commission.

HRS § 269-6(b) further provides:

> The public utilities commission shall consider the need to reduce the State's reliance on fossil fuels through energy efficiency and increased renewable energy generation in exercising its authority and duties under this chapter. In making determinations of the reasonableness of the costs of utility system capital improvements and operations, the commission shall explicitly consider, quantitatively or qualitatively, the effect of the State's reliance on fossil fuels on price volatility, export of funds for fuel imports, fuel supply reliability risk, and greenhouse gas emissions. The commission may determine that short-term costs or direct costs that are higher than alternatives relying more heavily on fossil fuels are reasonable, considering the impacts resulting from the use of fossil fuels.

B.

Procurement Of The Project

The PPA filed in this docket is the result of the Hawaiian Electric Companies' second round of competitive procurement to acquire new, dispatchable and renewable energy resources for Oahu, Maui, and Hawaii Island, which has been the focus of Docket No. 2017-0352.[106] The PPA with Mahi Solar

[106]See Application at 12-13 and Exhibit 2; see generally, In re Hawaiian Elec. Co., Inc., Hawaii Elec. Light Co., Inc., and Maui Elec. Co., Ltd., Docket No. 2017-0352.

represents one of several competitively procured, renewable dispatchable generation power purchase agreements resulting from this second round of competitive bidding.[107] Collectively, these projects, if approved, would provide approximately 300 MW of new renewable generation and about 2,000 MWh of storage across the Hawaiian Electric Companies' service territories, and are expected to lower electricity bills, on average, approximately $1 per month on the islands of Oahu and Maui.[108] When taking the first round of competitive procurement into account, which produced eight similar solar plus storage project applications in 2018, and seven of which were approved in 2019,[109] the past several years have represented a monumental shift in the electrical energy landscape in Hawaii towards reaching

[107]See Docket Nos. 2020-0136, 2020-0137, 2020-0138, 2020-0139, 2020-0141, 2020-0142, and 2020-0143. Negotiations with other renewable project developers that were selected from the second round of competitive bidding are still ongoing, and may result in additional power purchase agreements.

[108]https://www.hawaiianelectric.com/new-renewable-projects-submitted-to-regulators-will-produce-lower-cost-electricity-advance-clean-energy (accessed December 23, 2020).

[109]The Commission issued a Decision and Order regarding the Paeahu Solar project in Docket No. 2018-0433 on October 15, 2020, which is currently the subject of a pending motion for reconsideration.

100% renewable energy generation in accordance with the State's Renewable Portfolio Standards.[110]

C.

Addressing The PPA

1.

Material PPA Terms And Conditions

a.

Pricing Provisions

Lump Sum Payment. As described above, the Lump Sum Payment is payable to Mahi Solar on a monthly basis and calculated by multiplying the Unit Price by the NEP, which is then offset by Liquidated Damages, if applicable. The Unit Price is fixed at $0.097045944 per kWh of NEP, or approximately $0.10 per kWh, for the Term of the PPA.[111]

The Commission observes that, at approximately $0.10/kWh, the Unit Price is similar to other PPAs that the Commission has approved, and continues the declining pricing trend in procurement of utility-scale renewable generation.

NEP. The NEP is defined by the PPA as:

> The estimated single number with a P-Value of 95 for the annual Net Energy that could be produced by the Facility

[110]See HRS § 269-92.

[111]See Application, Exhibit 1 at 183 and Exhibit 4 at 7.

> based on the estimated long-term monthly and annual total of such production over a ten-year period. The Net Energy Potential is subject to adjustment as provided in Attachment U (Calculation and Adjustment of Net Energy Potential) to this Agreement, but in no circumstances shall the Net Energy Potential exceed the NEP RFP Projection. Any energy losses incurred by the BESS should not be factored into the NEP.[112]

In more colloquial terms, as noted above, "[t]he NEP represents the theoretical annual energy delivery of the [Project]'s PV system to the Point of Interconnection assuming 'typical' availability and 'representative' meteorological conditions at the site, with a probability of exceedance of 95%."[113] Mahi Solar represents that the Project will be capable of generating up to 271,525 MWh per year.[114]

The NEP is subject to adjustments during the Term of the PPA. The first assessment will occur prior to commercial operation of the Project, at the close of Mahi Solar's construction financing.[115] Hawaiian Electric will receive a copy of the IE's Energy Assessment Report, which will include the IE's own NEP

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[112]Application, Exhibit 1 at 168 (emphasis added). "Net Energy," in turn, is defined as "[t]he total quantity of electric energy (measured in kilowatt hours) produced by the Facility over a given time period and delivered to the Point of Interconnection, as measured by the revenue meter. 'Net Energy' is the equivalent of 'Actual Output.'" Id.

[113]Application, Exhibit 4 at 7.

[114]See Application at 2, and Exhibit 4 at 5.

[115]See Application, Exhibit 4 at 9.

estimate.[116] If the IE's NEP estimate is "equal to or greater than the NEP estimate provided in Seller's RFP Response, the Lump Sum Payment specified in this Application will apply for the first 15 months following Commercial Operations."[117] If the IE's NEP estimate is less than the estimate in Seller's RFP Response, Seller may either declare the PPA null and void or may accept the IE's NEP estimate; however, if Seller accepts the IE's NEP estimate, the IE's NEP estimate will be used to reduce the Lump Sum Payment during the first 15 months following Commercial Operations and Seller must pay a one-time Liquidated Damages penalty (calculated on the basis of $10/MWh of the differential between the Seller's NEP estimate and the IE's NEP estimate).[118] Thereafter, evaluators shall conduct periodic operational energy production reports ("OEPR"), which may trigger further recalculations of the Lump Sum Payments.[119]

Thus, although the NEP will be adjusted at certain intervals specified by the PPA, the PPA caps the NEP at the amount specified by the RFP (i.e., 271,525 MWh per year). Applying the PPA's Unit Price of $0.097045944/kWh, the maximum

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[116]See Application, Exhibit 4 at 9.

[117]Application, Exhibit 4 at 9.

[118]See Application, Exhibit 4 at 9.

[119]See Application, Exhibit 1 at 367-379 (Attachment U, "Calculation and Adjustment of Net Energy Potential").

Lump Sum Payment under the PPA is $26,350,399.95 per year, or $2,195,866.66 per month.[120]

Upon considering the PPA's NEP (which is capped at a maximum amount) and Unit Price (which is fixed for the Term of the PPA), the Commission finds that the Lump Sum Payment is reasonable because placing a maximum amount payable on the Lump Sum Payment provides more certainty and comparatively less price volatility to fossil fuel prices.[121] In addition, as noted above, the Unit Price is reasonable when compared to similar PV plus BESS PPAs that the Commission has recently approved.

Moreover, based on the Lump Sum Payment for this Project, Hawaiian Electric estimates that a typical residential ratepayer using 500 kWh per month will save $1.38, on average, in monthly electricity payments during the PPA term.[122]

Liquidated Damages. As stated above, Liquidated Damages have the potential to reduce the Lump Sum Payment down to zero if the Project is completely unavailable or underperforming as measured by the Performance Metrics. For the PV system of the Project, these Performance Metrics include: (a) the PV Equivalent

[120]Expressed as a mathematical equation: ($0.097045944 per kWh x 1,000) x 271,525 MWh per year = $26,350,399.95 per year. $26,350,399.95 per year/12 months = $2,195,866.66 per month.

[121]See HRS § 269-6(b).

[122]See Application at 10.

System Availability Factor Performance Metric, which evaluates the availability of the PV system for dispatch by Hawaiian Electric; and (b) the GPR, which evaluates the efficiency of the PV system.[123]

Regarding the BESS system, the Performance Metrics include: (a) the BESS Capacity Performance Metric, which confirms the capability of the BESS to discharge energy as required under the terms of the PPA; (b) the BESS EAF Performance Metric, which determines whether the BESS is meeting its expected availability; (c) the BESS EFOF Performance Metric, which evaluates whether the BESS is experiencing excessive unplanned outages; and (d) the BESS RTE Performance Metric, which is used to evaluate the BESS' storage efficiency.[124] Liquidated Damages relating to the BESS are calculated on the basis of the BESS Allocated Portion of the Lump Sum Payment (i.e., 50%) for an applicable three-month period (i.e., the BESS Measurement Period).[125]

The Commission finds that these Performance Metrics will collectively provide cost savings to ratepayers, as well as ensure that ratepayers are not paying for services or capacity if the PV system or the BESS do not meet their expected capability (as noted

[123]See Application, Exhibit 1 at 10-16, and Exhibit 4 at 6.

[124]See Application, Exhibit 1 at 9-34, and Exhibit 4 at 6.

[125]See Application, Exhibit 1 at 149-150.

above, the NEP for the Project is estimated at 95% capability which will be backstopped by these Performance Metrics).

b.

Nature Of The PPA.

The PPA is essentially a capacity contract, under which Hawaiian Electric agrees to pay Mahi Solar a monthly Lump Sum Payment in exchange for the flexibility to dispatch the Project to meet the grid's "energy and grid service requirements."[126] Consequently, Hawaiian Electric will make payments, even if it is unable or decides not to take any energy from the Project.[127] While the Performance Metrics and Liquidated Damages may offset the Monthly Lump Sum payments, in the event no Liquidated Damages are assessed, Hawaiian Electric is required to pay the full amount of the Monthly Lump Sum, regardless if Hawaiian Electric is capable of dispatching all of the Project's energy during that month. As the Consumer Advocate notes, this "represents a significant transfer of risk to customers."[128]

Notwithstanding the Consumer Advocate's concerns, upon reviewing the record and considering the circumstances of

[126]Application at 2.

[127]See Consumer Advocate SOP at 20.

[128]Consumer Advocate SOP at 20.

this particular Project, the Commission finds that the capacity contract nature of the PPA is reasonable. First, the Commission notes that, the PPA, like those from the Phase 1 RFP, represents a relatively new model of PPA which, as acknowledged by the Consumer Advocate, "represents an evolution from earlier contracts," and eliminates a number of less desirable provisions, including seniority curtailment, evergreen terms, and variable pricing.[129]

The Commission notes that these previously-included provisions were undesirable due to the impacts they had on curtailment of renewable energy. Under prior PPAs, the seniority curtailment provision provided that renewable PPAs would be curtailed on a seniority basis in reverse chronological order.[130] As a result, the utility would "curtail deliveries of electric energy from power purchase agreements with the most recent chronological seniority date first, and deliveries under the earliest power purchase agreements last[,]"[131] which ultimately meant that the newer, more efficient projects were curtailed first, while older, less efficient projects were curtailed last.

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[129]See Consumer Advocate SOP at 19.

[130]See In re Maui Elec. Co., Ltd., Docket No. 2015-0225, Decision and Order No. 33537, filed February 18, 2016 ("D&O 33537"), at 13.

[131]D&O 33537 at 13.

In addition to curtailing more efficient renewable projects, this provision also discouraged potential Independent Power Producers ("IPPs") from entering into PPAs with Hawaiian Electric, as the IPPs anticipated that their projects were more likely to be curtailed.[132]

These concerns subsequently resulted in new contract mechanisms, including variable pricing, under which the utility would pay an IPP for both electric energy delivered to the utility as well as for "compensable curtailed energy," which is essentially energy from the IPP that the utility is unable to accept.[133] While providing some assurance and financial stability to IPPs, variable pricing can still constitute payments for energy that customers cannot use. In prior proceedings, the Commission has instructed Hawaiian Electric to investigate an "alternative mechanism to the current curtailment system[.]"[134]

The PPA, with its Lump Sum Payment provision, represents an improvement over these prior contract models. Significantly, the addition of the BESS allows the Project to store electric energy received from the PV system, thereby allowing Hawaiian Electric the flexibility to dispatch it at a meaningful

[132]See D&O 33537 at 56.

[133]D&O 33537 at 9-10.

[134]See D&O 33537 at 53-54 and 67-68.

time, rather than curtailing it or dispatching it at the expense of curtailing another renewable resource.[135] This should mitigate concerns regarding curtailment seniority and variable pricing, as the Project can use its BESS to store energy that Hawaiian Electric cannot immediately dispatch, rather than face curtailment or require complicated pricing mechanisms to provide financial recovery for the IPP.

Additionally, as discussed above, the dispatchable nature of the PPA will allow Hawaiian Electric to dispatch stored energy to meet "periods of peak energy demand, and other non-solar periods, that could otherwise require fossil generation to meet[,]" and "assist in grid stabilization subject to discharge limits."[136]

That being said, the Commission recognizes the Consumer Advocate's concerns about the capacity-payment nature of the PPA and agrees with the Consumer Advocate's suggestion that Hawaiian Electric should be "prepared to demonstrate that

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[135]While prior contract models provided IPPs with the ability to "bank" curtailed energy, this is somewhat of a misnomer, in that the curtailed energy is merely credited toward a future term but is physically lost due to curtailment. See D&O 33537 at 10-11 and 54-55.

[136]Application at 23.

resources are being used to maximize the benefits to customers, without excess capacity or underutilized resources."[137]

As such, although the Commission finds that the nature of the PPA is reasonable and in the public interest when considering other pricing terms of the PPA, as discussed above, the Commission will require Hawaiian Electric to report on Project operations for purposes of accountability, to illustrate how the Project is dispatched and used to maximize customer benefits, to inform other projects, and to inform related dockets, as follows:[138]

Monthly reporting. Beginning with the first full calendar month following the in-service date of the Project, Hawaiian Electric shall file hourly commitment, dispatch, and curtailment data for the Project and all other Hawaiian Electric and IPP units on the system. Hawaiian Electric shall also include a narrative explanation of how the Project's dispatch and use benefitted customers (e.g., customer bill savings, reductions in fossil fuel generator dispatch, associated fuel savings, early and/or on-schedule fossil fuel generator retirement(s), reduced GHG emissions, etc.).

[137]Consumer Advocate SOP at 35.

[138]See e.g., In re Hawaiian Elec. Co., Inc., Docket No. 2017-0213, Decision and Order No. 35556, filed June 27, 2018 ("D&O 35556"), at 63-64.

The monthly and annual reports shall be filed in Docket No. 2011-0206 and may be consolidated with other curtailment reports therein.[139]

The Commission finds that such reporting represents a reasonable step towards improving transparency regarding Hawaiian Electric's use of its renewable resources for the benefit of its customers. Additional reporting requirements may be imposed in other dockets to the extent the Commission finds them to be reasonable and in the public interest.

c.

PPA Duration

As noted above, the PPA provides for an initial Term of twenty-five (25) years following the Commercial Operations Date.[140] "Upon expiration of the Initial Term, the PPA automatically terminates."[141]

The Consumer Advocate notes that the PPA term is "lengthy[,]" and "[d]uring times of declining price trends and technological improvements, such long terms may [] stifle

[139]Hawaiian Electric shall work with Commission staff to ensure the content of the monthly reports is consistent with this Decision and Order and adequately provides the transparency required herein.

[140]See Application, Exhibit 4 at 3.

[141]Application, Exhibit 4 at 3.

innovation since, as technology improves and prices decline, customers are not able to benefit from such improvements if [Hawaiian Electric] is locked into lengthy contracts."[142]

However, as the Consumer Advocate also notes, the IO in Docket No. 2017-0352 concluded that the non-price terms of the PPA are "reasonable" and that during the negotiation of the PPAs, the IO "observed no undue preference or treatment by Hawaiian Electric."[143]

Additionally, the PPA will automatically terminate upon the expiration of the initial 25-year term. This represents an improvement over previous PPAs, which included so-called "evergreen" provisions, under which the PPA would automatically renew upon the expiration of the initial term, without change in contract provisions.[144] The Consumer Advocate and Commission have expressed concern over such evergreen provisions in the past, which have necessitated Commission-imposed notice requirements.[145] The subject PPA's move away from such provisions is a notable improvement.

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[142]Consumer Advocate SOP at 20-21.

[143]Consumer Advocate SOP at 21.

[144]See In re Hawaiian Elec. Co., Inc., Docket No. 2014-0356, Decision and Order No. 33036, filed July 31, 2015 ("D&O 33036"), at 66-68.

[145]See D&O 33036 at 67-70.

Moreover, the PPA duration should not be viewed in isolation from the rest of the terms of the PPA. As discussed above, the Unit Price of the PPA is lower than recent PV plus BESS PPA pricing approved by the Commission, and the Lump Sum Payment is capped pursuant to the terms of the PPA, thereby limiting the potential cost exposure to Hawaiian Electric's customers.

Overall, the Commission finds that the subject PPA represents a significant step forward, not only towards Hawaii's renewable energy goals consistent with HRS § 269-6, but also towards lower energy prices. As such, combined with the reporting requirements set forth above, in Section III.C.1.b, the Commission finds that the 25-year Term of the PPA is reasonable and in the public interest.

d.

Curtailment

As discussed above in Section III.C.1.b. (Nature Of The PPA), above, the PPA contains provisions that address curtailment issues present in prior power purchase agreements, such as seniority curtailment and variable pricing. As stated by Hawaiian Electric, "[u]sing the availability of the [Project] and its Net Energy Potential as a basis for Lump Sum Payments limits the developer's financial risk associated with excess energy

curtailment, as seen in PPAs for prior projects, while at the same time ensuring low-cost pricing to benefit customers for the term of the PPA."[146] In contrast to prior as-available renewable projects with fixed price energy on a must-take, as-available basis, the PPA allows Hawaiian Electric "to dispatch the [P]roject's capacity and energy, with the flexibility for the facility to be used by the Company in the manner to benefit the system as a whole, in real time, based on current conditions, available resources and immediate needs."[147]

For similar reasons, Hawaiian Electric states that "addition of this Project is not expected to increase or decrease the system energy contributions of existing must-take, as-available independent power producer facilities[;]"[148] i.e., the Project should not affect curtailment of existing IPPs. As discussed above, many existing IPPs are curtailed for excess energy in reverse chronological seniority. Hawaiian Electric asserts that flexibility provided by the Project's BESS allows Hawaiian Electric to avoid this issue by "only dispatch[ing] the [Project] when there is a system need for the energy after taking

[146]Application at 32.

[147]Hawaiian Electric Response to CA/HECO-IR-19.

[148]Hawaiian Electric Response to CA/HECO-IR-20.

into account energy contributions from existing independent power producer facilities."[149]

Hawaiian Electric also states that it does not expect the Project "to increase or decrease the system energy contributions of existing must-take, as-available independent power producer facilities.[150] Hawaiian Electric also states that "to the extent that the Project's storage component can be charged from other generating resources on the grid, there could be the potential to utilize some of the energy generation from existing must take, as-available independent power producer facilities[.]"[151]

Upon review, the Commission finds that these considerations support the overall reasonableness of the Project. Specifically, the BESS can help significantly reduce curtailment risk, as compared to prior renewable PV projects. Furthermore, while the Project, due to the PPA's provisions, may not necessarily improve curtailment of other, existing, renewable IPPs, it is not expected to exacerbate or worsen curtailment issues.

Additionally, the Commission observes that the reporting requirements described in Section III.C.1.b. (Nature Of The PPA),

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[149]Hawaiian Electric Response to CA/HECO-IR-20.

[150]Hawaiian Electric Response to CA/HECO-IR-20.

[151]Hawaiian Electric Response to CA/HECO-IR-20.

above, gives the Commission assurances by providing transparency and accountability for Hawaiian Electric's dispatch decisions. If the Commission determines that renewable facilities are experiencing significant curtailments as a result of the Project, the Commission may investigate this issue as warranted.

2.

Land Use

According to Hawaiian Electric, the Project will be located on 617 acres of land in Kunia, on the island of Oahu, identified by TMK Nos. "(1)9-2-001:001, (1)9-2-004:012, (1)9-2-004:006, (1)9-2-004:003, (1)9-2-004:010, and possibly portions of additional parcels specifically to accommodate a connector line being considered".[152]

Mahi Solar states that it has provided Hawaiian Electric with documents to demonstrate its land rights with respect to the Project.[153] Although Mahi Solar has not yet received all the necessary permits and/or approvals for the Project, the Commission

[152]Application at 20. See also, id. at Exhibit 7; http://geodata.hawaii.gov/energis/ (providing a database searchable by TMK No.). The Commission notes that searching for TMK (1)9-2-001:001 does not yield a result in the energis database, and that Exhibit 7 shows that the Project will include TMK (1)9-2-001:020, but not TMK (1)9-2-001:001.

[153]See Mahi Solar Response to CA/LONGROAD-IR-2a.

notes that Mahi Solar has identified the necessary permits and approvals and developed an anticipated timeline of when it expects to receive them.[154] The Commission notes that section 11.1 of the PPA expressly states: "Seller shall obtain, at its expense, any and all Governmental Approvals required for the construction, ownership, operation and maintenance of the Facility."[155]

In the Application, Hawaiian Electric describes the Project site as "mauka of Village Park and Royal Kunia and primarily ewa (west) of Kunia Road. The area is a relatively flat landscape that supports a mixture of open space, agriculture and some development."[156] Hawaiian Electric further states "[t]he Project will be constructed on land owned by farmers who are active in commercial agriculture and are making some portion of their land available for the Project, while continuing to farm crops on the remainder of the property, where their operations will not be negatively affected by the [Project]."[157]

Relatedly, the Commission notes that certain parcels for the Project's proposed cite appear to contain soil classified as

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[154]See Mahi Solar Response to CA/LONGROAD-IR-2b. The Commission notes that this response is mislabeled as a response to CA/LONGROAD-IR-2a.

[155]Application, Exhibit 1 at 67.

[156]Application at 20.

[157]Application at 20.

"A," according to the Land Study Bureau's detailed land classification and productivity rating.[158] While land use issues are governed by the Land Use Commission, and beyond the Commission's scope of authority and expertise, the Commission is aware that HRS Chapter 205 places certain restrictions and/or requires specific permits for certain uses on agricultural land.[159]

Mahi Solar represents that it is responsible for obtaining every governmental approval necessary to complete the Project and has a timeline for securing all outstanding governmental approvals. The Commission accepts Mahi Solar's representations regarding governmental approvals and further notes that, in the event Mahi Solar fails to obtain the necessary governmental approvals, the PPA provides for the assessment of damages against Mahi Solar and in favor of Hawaiian Electric, which protects Hawaiian Electric's customers from any potential negative effects related to permitting or other governmental approvals. The Commission expects Hawaiian Electric to hold Mahi Solar accountable for its responsibilities and making diligent progress to complete the Project according to the timeline contemplated by the Application and the PPA.

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[158]See http://geodata.hawaii.gov/energis/ (providing a database searchable by TMK No. and with an LSB (A-E Soil Ratings) layer).

[159]See generally, HRS Chapter 205.

Specifically, pursuant to the PPA, Mahi Solar is required to pay Daily Delay Damages to Hawaiian Electric if Mahi Solar misses a Guaranteed Project Milestone other than Commercial Operations.[160] Furthermore, Hawaiian Electric has certain rights to terminate the PPA in the event Mahi Solar does not achieve a Guaranteed Project Milestone Date.[161]

The Commission finds that having these delay provisions in the PPA are reasonable in light of Hawaii's mandated RPS goals.[162] Accordingly, the Commission finds that land use issues are satisfactorily addressed by the PPA and through Hawaiian Electric's and Mahi Solar's representations. However, the Commission also finds that the PPA contemplates situations where Daily Delay Damages might be paid from Mahi Solar to Hawaiian Electric prior to the Commercial Operations Date and the associated Lump Sum Payment.[163]

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[160]See Application, Exhibit 1 at 79.

[161]See Application, Exhibit 1 at 79-80.

[162]See HRS § 269-92(a).

[163]See Application, Exhibit 1 at 79-80. As noted above, the PPA identifies the Guaranteed Commercial Operations Date of December 31, 2023. Application, Exhibit 1 at 299. Furthermore, Hawaiian Electric requests that the Commission issue a decision and order as soon as practicable in order to facilitate the "attainment of tax credits, which is expected to ultimately reduce the cost of electricity to benefit customers," as described in the Application. Application at 6.

According to the PPA, the Lump Sum Payment commences on the Commercial Operations Date.[164] As such, it is possible that Daily Delay Damages could be paid from Mahi Solar to Hawaiian Electric prior to the commencement of the Lump Sum Payment, in the event Guaranteed Project Milestones are not met before the Commercial Operations Date. Under these circumstances, if Daily Delay Damages are assessed, they would not be offset by Hawaiian Electric's Lump Sum Payment, because the date to begin the Lump Sum Payment (commencing with the Commercial Operations Date) would not yet have occurred.

According to the PPA, Daily Delay Damages are payable on a monthly basis from the "Development Period Security."[165] Furthermore, "[i]f the Development Period Security is at any time insufficient to pay the amount of the draw to which Company is then entitled, Seller shall pay any such deficiency to Company promptly upon demand."[166]

As such, to the extent that Daily Delay Damages are paid to Hawaiian Electric prior to commencement of the Lump Sum Payment, Hawaiian Electric shall credit the amount of the Daily Delay Damages received to its ratepayers through the PPAC.

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[164]See Application, Exhibit 1 at 8.

[165]Application, Exhibit 1 at 80 (PPA § 13.5).

[166]Application, Exhibit 1 at 80 (PPA § 13.5).

3.

Greenhouse Gas Emissions Analysis

a.

Lifecycle GHG Emissions

Hawaiian Electric's GHG Analysis is included as Exhibit 5 to the Application.[167] The GHG Analysis considers three stages in the lifecycle assessment of GHG emissions associated with the Project: (1) the upstream stage, which includes emissions attributed to raw material extraction, manufacturing, material transportation, and Project construction; (2) the operations stage, which includes emissions caused by operation and maintenance of the Project; and (3) the downstream stage, which includes emissions associated with decommissioning and disposal of Project materials. The lifecycle GHG analysis results are summarized in the tables below.[168]

[167]See Application, Exhibit 5 ("GHG Analysis").

[168]For all information involving calculated data, Hawaiian Electric provided underlying inputs, assumptions, calculations, formulas, and references in an Excel-compatible spreadsheet file "MahiSolar_GHGAnalysis_Sep2020.xlsx".

Project Stage[169]		GHG Intensity (kg CO_2e)/MWh)			
		Full Project	T&D Infrastructure	Solar	Storage
Upstream	Raw Materials Extraction & Manufacturing	45	0.40	23	21
	Transportation	0.37	0.035	0.19	0.14
	Construction	0.73	0.18	0.55	
Project Operations	Operations & Maintenance	0.23	0.23		
Downstream	Transportation	0.10	0.0037	0.057	0.043
	Decommissioning & Disposal	2.2	0.025	2.1	
Total Project Lifecycle		49			

Project Stage		GHG Emissions (MT CO_2e)			
		Full Project	T&D Infrastructure	Solar	Storage
Upstream	Raw Materials Extraction & Manufacturing	305,924	2,747	159,098	144,080
	Transportation	2,494	239	1,303	951
	Construction	4,941	1,191	3,750	
Project Operations	Operations & Maintenance	1,568	1,568		
Downstream	Transportation	709	25	388	295
	Decommissioning & Disposal	14,723	169	14,554	
Total Project Lifecycle		330,359			

[169]The abbreviations in these tables are memorialized as follows: kilograms ("kg"); carbon dioxide equivalents ("CO_2e"); transmission and distribution ("T&D"); and metric tons ("MT").

b.

Avoided GHG Emissions

In addition to estimating lifecycle GHG emissions, the GHG Analysis estimates Avoided Emissions by projecting the GHG emissions of fossil fuels on Hawaiian Electric's system from years 2024 to 2048 that would otherwise occur if the Project were not built.[170] Net emissions are also presented in the GHG Analysis and are calculated as Avoided Emissions from fossil fuel plants minus the emissions from the Project. The Avoided Emissions analysis focuses:

> solely on direct (stack) emissions since those emissions alone are significantly higher than those of the Project, represent the majority of projected GHG emissions from avoided fuel consumption if the Project were not built, and demonstrate the benefits of the Project over the avoided case in terms of GHG emissions. Thus it was concluded that the further inclusion of indirect GHG emissions from the fossil fuel sources (upstream, operations, or downstream) to the avoided case was unnecessary.
>
> Avoided Lifecycle GHG Emissions and Avoided Operations GHG Emissions were assumed to be equal and were calculated based on the combustion emissions of the fuel that would be consumed if the Project were not built. This approach does not quantify upstream emissions associated with producing and transporting the fossil fuels; indirect operations emissions such as those incurred by the combustion of fossil fuel by vehicles associated with plant maintenance and operations or auxiliary power uses needed for the operation of the fossil fuel electricity generation units or the administration of these units; or downstream emissions associated with decommissioning of the fossil fuel

[170] See Application, Exhibit 5 at 11.

electrical generation units. These excluded categories of GHG emissions, if included, would serve to further increase the overall Avoided GHG emissions, resulting in a higher Net GHG emissions reduction.[171]

The results of the Avoided and Net GHG Emissions analysis are presented in the tables below.

	Avoided GHG Intensity ($kg\ CO_2e/MWh$)	**Avoided GHG Emissions ($MT\ CO_2e$)**
Avoided Operations	521	3,536,560
Avoided Lifecycle	521	3,536,560

	Net GHG Intensity Reduction ($kg\ CO_2e/MWh$)	**Net GHG Emissions Reduction ($MT\ CO_2e$)[1]**
Net Operations	521	3,534,991
Net Lifecycle	472	3,206,201

After review of the record, the Commission finds that the GHG Analysis provides satisfactory estimates of upstream and operational GHG emissions associated with the Project. The projected lifecycle and avoided emissions are based on the best reasonably available public data and literature that has undergone scientific peer-review for solar PV, battery energy storage, substation, and T&D infrastructure systems. The GHG Analysis considers the most current information available, including emission factors, manufacturer specifications,

[171]Application, Exhibit 5 at 12.

transportation distances to Oahu, and Project-specific inputs for equipment, materials, and activities. Where a given input was not provided or otherwise confirmed by the developer, the GHG Analysis provides a brief explanation and reference to the source documentation for the proxy value used.[172]

In contrast to the upstream and operational GHG emissions analysis, the inputs and assumptions Hawaiian Electric uses for downstream emissions are not specific. The GHG Analysis discusses many possible disposal options for every Project component, "including landfill, incineration, and recycling[.]"[173] The GHG Analysis does not specify which components will be repurposed, recycled, incinerated, or landfilled.[174]

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[172]See Application, Exhibit 5. See also Hawaiian Electric Response to CA/HECO-IR-13.

[173]Application, Exhibit 5 at 11. See also Application, Exhibit 5, Appendix Table A7: Decommissioning & Disposal GHG Emissions Calculations. Project components listed for disposal include PV panels, inverters, transformers, batteries, battery storage containers, miscellaneous battery equipment, overhead transmission line, optical ground wire cable, wood poles, switchyard and substation components, and miscellaneous T&D equipment. Id.

[174]Mahi Solar explains that "[a]t this stage of development the selection of recycling vendors has not been made for any of the equipment, though the key elements of the programs typically include separation of components into segregated processing streams and disposal and management of any hazardous waste materials in compliance with applicable state and federal regulations." Response to PUC-Mahi Solar-IR-101.

The Consumer Advocate raises concerns about the downstream GHG analysis, noting that there is "some ambiguity regarding the end of life treatment for equipment for T&D Infrastructure that would impact downstream GHG emissions."[175] The Consumer Advocate argues that Hawaiian Electric and Mahi Solar do not have a detailed decommissioning plan and methodology in place and contends that a basic plan or outline of a possible plan would provide additional clarity on downstream GHG emissions.[176]

Hawaiian Electric responds that Mahi Solar already provided a general decommissioning plan in response to PUC-Mahi Solar-IR-101.[177] Hawaiian Electric further argues that decommissioning plans will continue to be refined throughout the Project's development and "require an assessment of the Company's needs for the interconnection facilities and the environmental laws in effect at the time of decommissioning, and thus cannot be committed to prior to the Project's development and construction."[178]

The Commission is aware that the policies and related industries for managing the end-of-life treatment of PV and storage

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[175]Consumer Advocate SOP at 31-32.

[176]See Consumer Advocate SOP at 33-34.

[177]See Hawaiian Electric RSOP at 10-11.

[178]Hawaiian Electric RSOP at 11.

projects are still maturing.[179] The Commission recognizes the speculative nature of planning for a potential decommissioning that is at least 25 years away.[180] But the Commission believes that a more detailed plan for end-of-life treatment (i.e., repurposing, recycling, incineration, and/or landfilling) for all Project equipment would help ensure that strategies are in place to safely and cost effectively handle these materials at end of life with minimal environmental and GHG impacts. It would also allow for a more thorough assessment of downstream GHG emissions. The Commission also notes that the PPA Term is 25 years, and the expected useful life of the batteries that make up the BESS is 20 years.[181] This means that Hawaiian Electric and Mahi Solar should plan to address end-of-life treatment for batteries before the PPA Term expires.

Therefore, Commission finds it reasonable and in the public interest to require Hawaiian Electric to work with Mahi Solar to develop a comprehensive end-of-life management plan for the Project's components. This plan should provide the end-of-life treatment for each Project component, the expected

[179]See, e.g., Recycling and Disposal of Battery-Based Grid Energy Storage Systems: a Preliminary Investigation, Electrical Power Research Institute (December 2017), available at https://www.epri.com/research/products/000000003002006911.

[180]See Consumer Advocate SOP at 34.

[181]See Application, Exhibit 5 at 25.

cost of this treatment, and any third-parties expected to provide this service. Given the speculative nature of this plan, and the nascent nature of policies and related industries for managing the end-of-life treatment of PV and storage projects, the Commission will give Hawaiian Electric 5 years from the date of this Order to file it.

Notwithstanding these concerns, as discussed further in Section III.C.6. (Conditions To Approval) below, the Commission finds that approval and completion of the Project would result in a significant reduction in GHG emissions on Hawaiian Electric's system. As demonstrated by the GHG Analysis, the Project will help avoid significantly more emissions on Hawaiian Electric's system than it will produce, resulting in 3,206,201 MT CO_2e net reduction in GHG emissions over the Project's lifecycle.[182]

4.

Community Outreach

The RFP required Mahi Solar to develop a comprehensive community outreach and communications plan for the Project.[183] Exhibit 8 of the Application contains a summary of Mahi Solar's

[182]See Application, Exhibit 5 at 13.

[183]See Application at 25-26.

community outreach efforts and public comments it received as of the time the Application was filed.[184]

In response to CA/LONGROAD-IR-6.a., Mahi Solar states that currently there is no substantial opposition to the Project. Likewise, in its Statement of Position, Mahi Solar states that the Project has general support of the local community.[185] Specifically, Mahi Solar states that it "conducted a community meeting where it solicited comments" and "will continue to keep the community informed and engaged throughout the development of the Project and to address in a timely manner any potential issues or concerns that arise."[186]

The Consumer Advocate notes that Mahi Solar is working with the Hawaii Farm Bureau and an ecological restoration and engineering team to address the community's concerns and that Mahi Solar is also working with stakeholders to determine the community benefits package that would best fit the desires of the community.[187]

The Commission emphasizes the importance of community engagement and has carefully reviewed Mahi Solar's efforts to reach

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[184]See Application at 27, and Exhibit 8.

[185]See Mahi Solar SOP at 11.

[186]Mahi Solar SOP at 11, 13.

[187]See Consumer Advocate SOP at 25.

out to the community and allay any concerns. The Commission finds that not only has Mahi Solar met both the RFP and PPA community outreach requirements by providing Hawaiian Electric a detailed plan for community outreach, but it has also engaged a broad and diverse set of community members and stakeholders and considered community feedback by committing to conduct several studies.

The Commission believes effective community outreach is essential to achieving the State's clean energy goals. Based on the foregoing, and upon review of the record, the Commission finds that Mahi Solar has met the requirements related to community outreach in both the RFP as well as the PPA.

5.

PPA Approval

The additional capacity of the Project is beneficial because it increases Hawaiian Electric's system reliability and grid stability in the event, for example, of an unforeseen shutdown of one or more other units on Hawaiian Electric's system.

Subject to the reporting requirements discussed in Section III.C.1.b. (Nature Of The PPA), the nature of the PPA is reasonable and in the public interest when considering other pricing terms of the PPA.

To the extent that "Daily Delay Damages" are paid to Hawaiian Electric prior to commencement of the Lump Sum Payment,

Hawaiian Electric shall credit the amount of the "Daily Delay Damages" received to its ratepayers through the PPAC.

The subject PPA overall represents a significant step not only towards Hawaii's renewable energy goals consistent with HRS §§ 269-6 and 269-92 (RPS), but also towards lower energy prices.

As such, subject to the reporting requirements set forth in Section III.C.1.b. (Nature Of The PPA), the Commission finds that the term of the PPA is reasonable and in the public interest.

A fixed Unit Price throughout the PPA term is reasonable and in the public interest because the fixed price provides more certainty and comparatively less price volatility than fossil fuel prices and contributes to significant customer bill savings.[188]

Upon considering the PPA's NEP (which is capped at a maximum amount) and Unit Price (which is fixed for the Term of the PPA), the Lump Sum Payment is reasonable because placing a maximum amount payable on the Lump Sum Payment provides more certainty and

[188]HRS § 269-6(b) (stating that the Commission shall "explicitly consider, quantitatively or qualitatively, the effect of the State's reliance on fossil fuels on price volatility, export of funds for fuel imports, [and] fuel supply reliability risk"); see also Hawaiian Electric Response to CA/HECO-IR-29 (describing the fluctuations in diesel fuel prices over the past ten years).

comparatively less price volatility as compared to fossil fuel prices.[189]

The Performance Metrics in the PPA will collectively provide cost savings to ratepayers and ensure that ratepayers are not paying for services or capacity if the PV system or the BESS do not meet their expected capability.

The BESS helps to significantly reduce curtailment risk, as compared to prior renewable PV projects. Furthermore, while the Project, due to the PPA's provisions, may not necessarily improve curtailment of other existing renewable IPPs, it is not expected to exacerbate or worsen curtailment issues.

Hawaiian Electric's GHG Analysis satisfactorily captures both the Project's direct emissions and foreseeable indirect emissions. As demonstrated in these analyses, approval and completion of the Project would result in a significant reduction in Lifecycle and Operational GHG emissions relative to the baseline without the Project.[190]

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[189]See HRS § 269-6(b) (stating that the Commission shall "explicitly consider, quantitatively or qualitatively, the effect of the State's reliance on fossil fuels on price volatility, export of funds for fuel imports, [and] fuel supply reliability risk").

[190]See Application, Exhibit 5 at 12.

Mahi Solar has met the requirements related to community outreach in both the RFP and the PPA by providing Hawaiian Electric a detailed plan for community outreach.

The Commission concludes that the Performance Metrics included in the PPA provide Mahi Solar with a strong incentive to ensure that the Facility is available for Hawaiian Electric to dispatch.

Based on the foregoing, the Commission finds and concludes that Hawaiian Electric has met its burden of proof in support of its request for approval of the subject PPA between Hawaiian Electric and Mahi Solar. The Commission finds and concludes that Hawaiian Electric's purchased power arrangements under the PPA, pursuant to which Hawaiian Electric will dispatch energy on an availability basis from Mahi Solar and pay Lump Sum Payments to Mahi Solar are prudent and in the public interest. Therefore, subject to the conditions discussed above in Section III.C.1.b. (Nature Of The PPA), and immediately below, the Commission approves the PPA.

6.

Conditions To Approval

The Commission finds it reasonable and in the public interest to require Hawaiian Electric to report on Project operations for purposes of accountability and to inform other

projects and related dockets.[191] Hawaiian Electric shall comply with the following reporting requirements:

Monthly reporting. Beginning with the first full calendar month following the in-service date of the Facility, Hawaiian Electric shall file hourly commitment, dispatch, and curtailment data for the Project and all other Hawaiian Electric and IPP units on the system. Hawaiian Electric shall also include a narrative explanation of how the Project's dispatch and use benefitted customers (e.g., customer bill savings, reductions in fossil fuel generator dispatch, associated fuel savings, early and/or on-schedule fossil fuel generator retirement(s), reduced GHG emissions, etc.). The monthly report shall be filed in Docket No. 2011-0206 and may be consolidated with other curtailment reports therein. The Commission continues to expect that Hawaiian Electric's curtailment of fossil fuel generation will occur before curtailment of must-take, as-available renewable resources.[192]

[191]See D&O 35556 at 63-64.

[192]See HRS § 269-6(b); In re Hawaii Elec. Light Co., Inc., Docket No. 2011-0040, Decision and Order No. 30088, filed December 30, 2011, at 42.

Regarding the Consumer Advocate's proposed conditions, the Commission finds as follows:

Requiring Hawaiian Electric to file invoices and Seller's income statements or results of operation following the Commercial Operations Date. The Consumer Advocate has proposed a similar condition in prior proceedings involving the Stage 1 PPAs, and older renewable PPAs.[193] In support of its proposal in this proceeding, the Consumer Advocate states that it will allow the Consumer Advocate "to evaluate the comparability of the Project's actual results to the pro forma information[.]"[194]

In the Stage 1 PPA dockets, the Commission declined to adopt the Consumer Advocate's proposed condition because: (1) the Stage 1 PPA model does not contain a curtailment seniority provision, nor is it expected to impact curtailment of existing renewable IPPs; (2) the nature of Stage 1 PPA procurement process has provided a number of safeguards, such as Commission and stakeholder review, competitive bidding, and IO oversight; and (3) that when reviewing the reasonableness of the Project, the Commission considers many other factors in addition to Project

[193]See Docket Nos. 2019-0050, 2018-0436, 2018-0435, 2018-0434, 2018-0433, 2018-0432, 2018-0431, and 2018-0430 (collectively "Stage 1 PPA Dockets"); see also Docket Nos. 2017-0443, 2017-0018, 2015-0331, 2015-0225, and 2015-0224.

[194]Consumer Advocate SOP at 36.

cost, including customer bill savings, reducing fossil fuel consumption, reducing GHG emissions, and grid services. For these same reasons, after considering the record as a whole, the Commission is not persuaded that the disclosure of the Project invoices and Mahi Solar's income statements, is warranted under these circumstances and, therefore, declines to adopt the Consumer Advocate's proposed condition.

Requiring bidders to file pro forma information in future procurement processes with supporting documentation. Mahi Solar does not appear to oppose this condition and Hawaiian Electric agrees that such information "would have been beneficial to the [procurement] process and allowed for a more informed evaluation of developers' proposed projects."[195]

The Commission observes that this proposal does not pertain to the Consumer Advocate's finding of overall reasonableness regarding the subject PPA. The Commission initially addressed this issue in Docket No. 2017-0352, but will re-examine it in future procurement processes.[196]

Reporting of missed Guaranteed Project Milestones, the reason why the milestone was missed, and any measure to

[195]Hawaiian Electric Reply SOP at 6.

[196]See Order No. 36356 at 25-26 (directing Hawaiian Electric to remove the requirement that bidders provide pro forma information as a requirement of the Phase 2 RFPs).

mitigate the impact. Hawaiian Electric does not oppose this, but requests a filing timeframe of twenty-five (25) days after a missed Guaranteed Project Milestone to align with the Seller's ten-day grace period before being assessed Daily Delay Damages.[197] The Commission finds this condition, including Hawaiian Electric's proposed modification, to be reasonable, because it will allow the Commission and the Consumer Advocate additional visibility into the Project's progress and the potential for delays. Therefore, the Commission directs Hawaiian Electric to report, within twenty-five (25) days after a missed Guaranteed Project Milestone: (1) the milestone missed; (2) the reason why the milestone was missed; and (3) and any mitigation measures already taken or contemplated. Such reports shall be filed in this docket.

Requiring Hawaiian Electric to file periodic analyses to support a finding that the Project is being used in a manner that maximizes benefits to customers. As Hawaiian Electric correctly notes, it is already required to file information relating to the use and dispatch of the Facility in reports filed in Docket Nos. 2017-0213 and 2011-0206. The Commission finds that requiring the periodic analyses that the Consumer Advocate requests would be duplicative, given the monthly reporting that is

[197]Hawaiian Electric Reply SOP at 6-7.

already required. Therefore, the Commission declines to adopt this condition.

Decommissioning plan. The Consumer Advocate argues that a basic decommissioning plan or outline would provide additional clarity on the revised GHG emissions detailed in response to CA/HECO-IR-32.c.[198] Although the Commission agrees that a basic plan or outline could provide additional clarity on GHG emissions, and who would bear the costs of decommissioning, there is insufficient information to develop such a plan this time. The Commission expects that more information will become available in the due course of the permitting process and the Project's operation. According to Hawaiian Electric, the GHG impacts of decommissioning will be "negligible."[199] Additional clarity on this negligible portion of the Project's GHG emissions would not affect the Commission's overall GHG analysis. But the Commission will require Hawaiian Electric to work with Mahi Solar to develop a comprehensive end-of-life management plan for the Project's components, as discussed above. Hawaiian Electric shall file that

[198]See Consumer Advocate SOP at 33-34.

[199]Response to CA/HECO-IR-32.a. Hawaiian Electric further indicates that GHGs caused by decommissioning and disposal would increase the Project's total lifecycle GHG emissions by 0.007%. See Response to CA/HECO-IR-32.c. The Consumer Advocate references this analysis in its SOP, and does not question or contradict it. See Consumer Advocate SOP at 32-33.

end-of-life management plan in this docket within five years of the date of this Order.

Pages 30-31 of Attachment 1 to the Consumer Advocate's Statement of Position. Hawaiian Electric does not object to these conditions, instead stating that it will work on those issues in "any subsequent all resource RFPs."[200] Mahi Solar does not raise any objections. The Commission addressed changes to the bid evaluation process for Phase 2 in Docket No. 2017-0352.[201] The Commission agrees that Hawaiian Electric should continue work with the Commission the Consumer Advocate, and other stakeholders in Docket No. 2017-0352 to address the IO's concerns and recommendations going forward. The Commission will provide additional guidance as needed.

D.

Recovery Of PPA-Related Non-Energy Payments Through The PPAC

Given the Commission's overall approval of the PPA, the Commission likewise approves Hawaiian Electric's request to recover the PPA's non-energy payments, including the Lump Sum Payments and related revenue taxes, through the PPAC, to the extent

[200]Hawaiian Electric Reply SOP at 11.

[201]See Docket No. 2017-0352, Order No. 36474, "Approving the Hawaiian Electric Companies' Proposed Final Phase 2 Requests for Proposals, with Modifications," filed August 15, 2019.

such costs are not included in base rates. This is consistent with HAR § 6-60-6(2), which authorizes the pass through of purchased energy charges through an electric utility's PPAC, and HRS § 269-16.22, which requires the pass through of power purchase costs through an automatic adjustment surcharge.

However, the Commission conditions approval of recovery of the non-energy payments under the PPA through the PPAC, as follows:

A. As discussed above, in Section III.C.2. (Land Use), to the extent Daily Delay Damages, Termination Damages, or other revenues or benefits are paid to Hawaiian Electric, such revenues or benefits paid to Hawaiian Electric shall be returned to its ratepayers through the PPAC; and

B. Recovery of the Lump Sum Payment through the PPAC shall be limited to the Lump Sum Payment net of Force Majeure adjustments or any offset due to Liquidated Damages.

E.

Hawaii's Energy Policy Statutes

The State of Hawaii has adopted several energy policies requiring and/or encouraging reduction in the utilization of fossil fuels in statutes that directly pertain to the regulation of public utilities, as discussed further, below.

1.

Contribution to State Energy Goals (RPS)

The Commission notes Hawaiian Electric's statement that "[t]he renewable energy to be purchased from the Facility pursuant to the PPA will assist Hawaiian Electric in achieving the State of Hawaii's RPS goals."[202] The Commission also notes Hawaiian Electric's estimate that the Project could contribute up to 4.14 percentage points of Hawaiian Electric's 2025 RPS and 3.17 percentage points of the Hawaiian Electric Companies' consolidated 2025 RPS.[203]

2.

HRS § 269-6

HRS § 269-6(b) provides, in relevant part:

> The [Commission] shall consider the need to reduce the State's reliance on fossil fuels through energy efficiency and increased renewable energy generation in exercising its authority and duties under this chapter. In making determinations of the reasonableness of the costs of utility system capital improvements and operations, the commission shall explicitly consider, quantitatively or qualitatively, the effect of the State's reliance on fossil fuels on price volatility, export of funds for fuel imports, fuel supply reliability risk, and greenhouse gas emissions.

[202]Application at 11.

[203]See Application at 11.

Hawaiian Electric estimates "that the Facility has the potential to displace about 8,107,763 barrels of fossil fuel over the term of the PPA[.]"[204] Hawaiian Electric further states that the Project will assist it with moving "towards energy independence and decreased reliance on foreign imported oil while maintaining reliability of the Company system."[205] Hawaiian Electric explains how the PPA will reduce customer exposure to volatility in fuel prices because "[t]he PPA pricing is not linked to fossil fuel and is fixed over the term of the contract, meaning customers will not be subject to bill increases with rises in the price of fossil fuel."[206]

The Commission recognizes the importance of considering the effects that Hawaii's reliance on fossil fuels has on the State's economy and general welfare in making utility resource planning, investment, and operation decisions. In performing the duties specified in HRS Chapter 269, the Commission has been

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[204]Application at 5. See also Application, Exhibit 3 which provides a "Project Benefits Analysis" that quantifies the benefits of the Project using a production simulation computer program called PLEXOS to simulate how the Hawaiian Electric's electric power system will operate without the Project ("Base Case") and with the Project ("Alternate Case"). Specifically, Hawaiian Electric expects the Project to displace 2,541,564 barrels of low sulfur fuel oil, 364,199 barrels of diesel fuel, 5,202,000 barrels of ultra-low sulfur diesel, and 1,204,286 barrels of biodiesel for the Oahu system.

[205]Application at 11-12.

[206]Application at 12.

diligent in implementing the State's energy policies and statutes, giving deliberate weight to these provisions in the broader context of the many other statutes and considerations necessary to regulate and provide universal, reliable, and affordable access to essential electric utility services.[207]

Based on the above estimates of the total avoided fuel consumption that will result from implementation of the Project, the Commission concludes that fuel consumption will also decrease if the Project is implemented, and that, as a result, the overall funds that would have been spent for fuel imports will also decrease correspondingly.

Furthermore, the Commission concludes that the reduction of fuel consumption resulting from implementation of the Project, along with the increased level of renewable energy that will be utilized, will result in a reduced need for fossil fuel supply and thus reduce fuel supply reliability risk.

Based on the above estimates of the total avoided fuel consumption that will result from implementation of the Project,

[207]Some of these broader considerations (such as monetary costs) are obvious, while others are explicitly stated or implied elsewhere in statutes, and/or specified in case law in which the courts have set forth standards and interpretations regarding the determination of just and reasonable rates, which collectively include: reliability, affordability, fairness, provision of just and reasonable compensation for utility investment, and provision of just and reasonable rates to utility customers.

the Commission concludes that fuel consumption will also decrease if the Project is implemented, and that, as a result, the overall funds that would have been spent for fuel imports will also decrease correspondingly.

Furthermore, the Commission concludes that the reduction of fuel consumption resulting from implementation of the Project, along with the increased level of renewable energy that will be utilized, will result in a reduced need for fossil fuel supply and thus reduce fuel supply reliability risk.

Upon explicit consideration, weighing the four specified criteria in HRS § 269-6(b) (price volatility, export of funds for fuel imports, fuel supply reliability risk, and GHG emissions), the Commission finds the PPA to be reasonable and in the public interest because the PPA overall advances Hawaii's goal of reducing reliance on fossil fuels through energy efficiency and increased renewable energy generation through clean energy resources, and does so at a price that is estimated to result in savings for Hawaiian Electric's ratepayers between 2024 and 2048. The Commission finds that the amount of fuel that the Project is projected to displace will result in a decreased reliance on imported oil, thereby reducing the potential negative economic impacts of oil price volatility, and also decrease the funds exported for fuel imports.

F.

Remainder Of The Proceeding

As noted above, Hawaiian Electric requested that the Commission issue two separate decisions and orders in this docket, the first decision approving the PPA-related requests, which are the subject of the Commission's discussion, above, and the second decision approving the Interconnection-Related Requests.[208] Pursuant to Order No. 37383, the Commission bifurcated Hawaiian Electric's PPA-related requests from its Interconnection-Related Requests.[209]

As of the filing of the Application, the IRS was not completed; however, in order to take advantage of federal investment tax credits, "the Parties agreed to execute the PPA prior to the completion of the IRS for the Project."[210] Hawaiian Electric stated that it will file an amendment to the PPA based on the IRS results.[211] As such, upon Hawaiian Electric's filing of an amendment to the PPA based on the IRS results, the Commission will issue a procedural schedule in this docket to

[208]See Application at 5-7.

[209]See Order No. 37383 at 15-16.

[210]Application at 24 (citation omitted).

[211]See Application at 24.

govern its review of Hawaiian Electric's above-ground 138 kV line extension Interconnection-Related Requests (Issue 4).[212]

IV.

SUMMARY OF FINDINGS OF FACT AND CONCLUSIONS OF LAW

Based on the foregoing, subject to the conditions set forth above, the Commission finds:

1. Hawaiian Electric has met its burden of proof in support of its request for approval of the PPA between Hawaiian Electric and Mahi Solar, dated September 11, 2020. In support thereof, the Commission further finds:

A. The purchased power arrangements under the PPA, pursuant to which Hawaiian Electric will dispatch energy on an availability basis from Mahi Solar, including the Lump Sum Payment to be paid to Mahi Solar, are prudent and in the public interest; and

2. Hawaiian Electric has met its burden of proof in support of its request to include all non-energy payments under the PPA, including the Lump Sum Payment and related revenue taxes,

[212] See Order No. 37383 at 7 (stating that the Commission intends to issue a separate procedural order to govern Hawaiian Electric's above-ground 138 kV line extension-related requests).

through the PPAC, to the extent such costs are not included in base rates.

V.

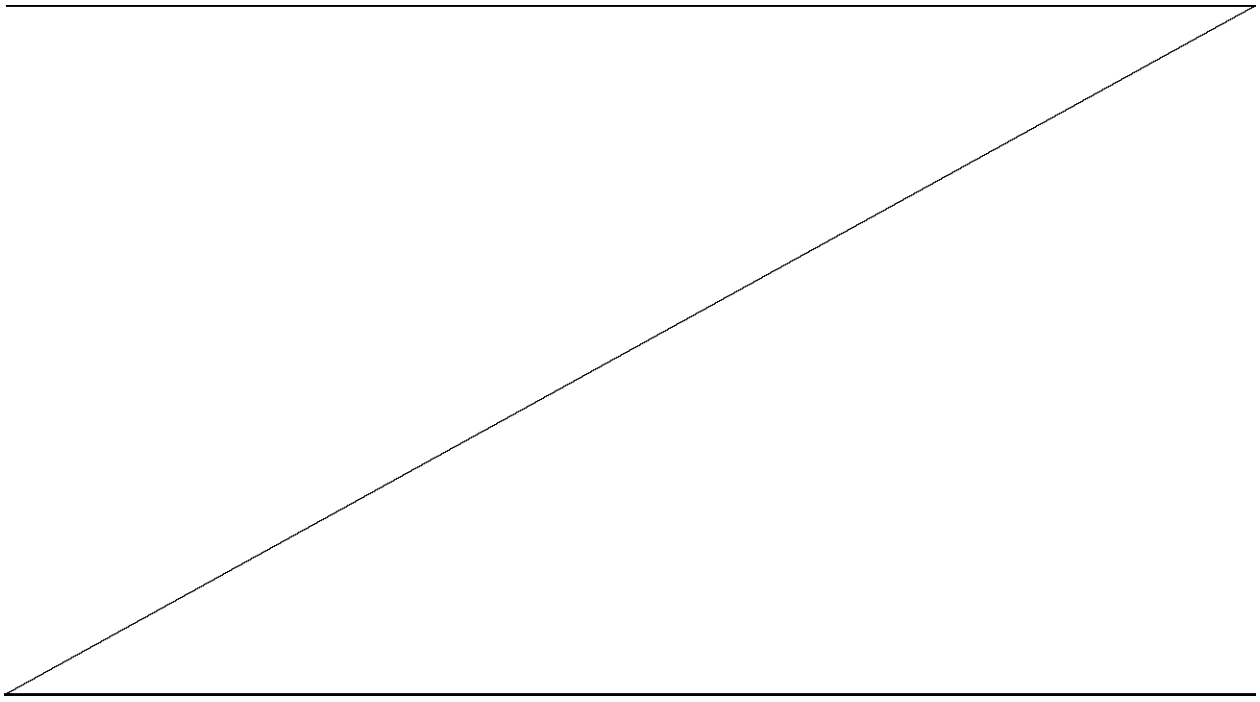
ORDERS

THE COMMISSION ORDERS:

1. Subject to the conditions set forth in Sections III.C.6. and III.D., the Commission approves:

A. The PPA between Hawaiian Electric and Mahi Solar, dated September 11, 2020; and

B. Hawaiian Electric's request to include all non-energy payments under the PPA, including the Lump Sum Payments (as defined in the PPA) and related revenue taxes, through the PPAC, to the extent such costs are not included in base rates.



2. After Hawaiian Electric files an amendment to the PPA based on its IRS results, the Commission will issue a procedural schedule in this docket to govern its review of Hawaiian Electric's above-ground 138 kV overhead line Interconnection-Related Requests.

DONE at Honolulu, Hawaii DECEMBER 30, 2020.

PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

By _____
James P. Griffin, Chair

By _____
Jennifer M. Potter, Commissioner

By _____
Leodoloff R. Asuncion, Jr., Commissioner

APPROVED AS TO FORM:

_____
Mike S. Wallerstein
Commission Counsel

2020-0140.ljk

CERTIFICATE OF SERVICE

Pursuant to Order No. 37043, the foregoing Order was served on the date it was uploaded to the Public Utilities Commission's Document Management System and served through the Document Management System's electronic Distribution List.

The foregoing document was electronically filed with the State of Hawaii Public Utilities Commission's Document Management System (DMS).